PHYSICS

AAKASH INSTITUTE ENGLISH

MOCK TEST 12

Example

1. Which of the following statement is incorrect?

A. Gravitational forces are medium dependent

B. Gravitational forces are central forces

C. Gravitational force is an action reaction pair
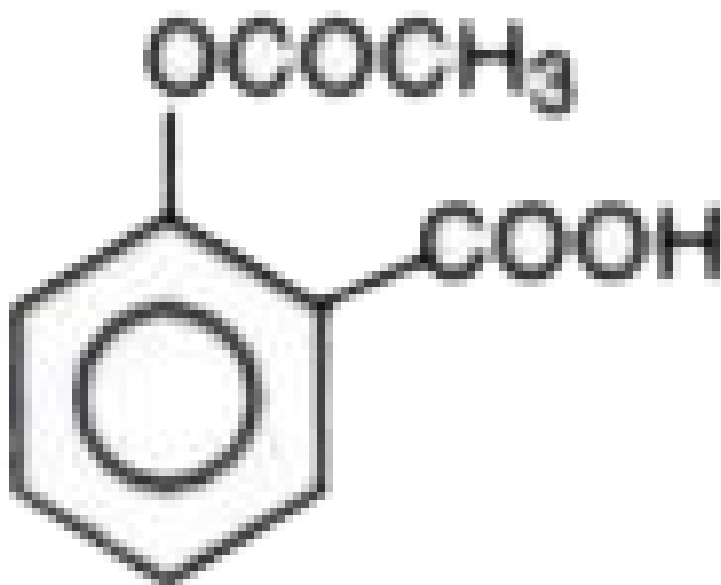
D. Both (1) and (2)

Answer: A

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2. The compound

$$OCOCH_3$$

$$COOH$$

is used as

A. C

B. B

C. A

D. D

Answer: C

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3. If the mass of a revolving around the sun is doubled and its frequency of revolution remains constant then the radius of its orbit will be

A. Doubled

B. Thrice

C. Halved

D. Remain same

Answer: D

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4. Which of the following statement is correct?

A. Gravitational force is always attractive in

nature

B. Gravitational force is strongest in nature

C. Gravitational force is non-central force

D. Both (1) and (2)

Answer: A

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5. Three equal masses of 1 kg each are placed at the vertices of an equilateral triangle of side 1 m, then the gravitational force on one of the masses due to other masses is (approx.)

A. $\{6.67(10^{-11})\}$ N

B. 10^{-3} N

C. $[11.5(10^{-11})]N$

D. 11.5(10^-3)N`

Answer: C

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6. Mass M is divided into two parts m_1, and m_2, For a given separation the ratio of $\dfrac{m_1}{M}$ for

which the gravitational attraction between the

two parts becomes maximum is

A. $1:1$

B. 1: 2

C. $1:3$

D. $1:4$

Answer:

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7. Acceleration due to gravity is minimum at

A. The surface of earth

B. The depth 100 km from the earth's surface

C. The centre of earth

D. The height 100 km from the earth's surface

Answer: C

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8. If R is the radius of the earth and g the acceleration due to gravity on the earth's surface, the mean density of the earth is

9. If radius of earth decreases by 10%, then acceleration due to gravity (Density of earth remain constant)

    A. Decreases by 10%

B. Decreases by 19%

C. Increases by 21%

D. Increases by 10%

Answer: A

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10. Two particles A and B of mass 1 kg and 4 kg respectively approach each other due to their mutual gravitational force only. Then the ratio of acceleration of A to B at any instant is

A. $4:1$

B. $2:1$

C. $1:2$

D. $1:4$

Answer:

11. The height above the earth's surface at which the weight of a person becomes 1/4th of

his weight on the surface of earth is (R is the radius of earth)

A. 2 R

B. R

C. 3 R

D. 5 R

Answer: B

12. At what depth from the surface of the earth, the acceleration due to gravity will be half the value of g on the surface of the earth ?

A. $\dfrac{R}{2}$

B. $\dfrac{R}{3}$

C. R

D. $\dfrac{R}{4}$

Answer: A

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13. Two spheres each of mass 104 kg are separated by a distance of 100 m. What will be the gravitationel potential energy of the system?

14. The angular speed of earth's rotation about its own axis is ω. When its angular speed is increased to n time its original

angular speed, the acceleration due to gravity at the equator becomes zero. What is the value of n?

[R is the equatorial radius of the earth]

A. Increases to n times

B. Decreases to times

C. Decreases to times

D. $(1 / \omega) \sqrt{(\frac{g}{R})}$

Answer: D

15. Infinite number of masses, each of mass 3 kg are placed along the y-axis at y = 1 m, 3 m, 9 m 27 m ... The magnitude of resultant gravitational potential in terms of gravitatinal constant at the origin (y = 0) is

A. 4.5 G unit

B. 6 G unit

C. 3 G unit

D. 9 unit

Answer: A

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16. A cylinder is rolling down on a inclined plane of inclination$60°$. What is iths acceleration?

A. $5\,SqrtX\dfrac{3}{14}g$

B. $\dfrac{g}{3}$

C. $\dfrac{g}{2}$

D. 5g/14

Answer: A

17. A disc is rolling without slipping. The ratio of its rotational kinetic energy and translational kinetic energy would be -

A. $1:2$

B. $2:1$

C. $1:1$

D. $1:4$

Answer: A

18. The speed of a homogenous solid sphere after rolling down an inclined plane of vertical height h, from rest without sliding is

A. $SqrtX\dfrac{6}{5}gh$

B. $SqrtX\dfrac{10}{7}gh$

C. $SqrtXgh$

D. $SqrtX\dfrac{4}{3}gh$

Answer:

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